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## 1 Routine/Function Prologues

### 1.1 Fortran: Module Interface tile\_spmdMod.F90 (Source File: tile\_spmdMod.F90)

This module contains routines for domain decomposition in tile space

#### REVISION HISTORY:

14 Nov 2002; Sujay Kumar Initial Specification

#### INTERFACE:

```
module tile_spmdMod
```

#### USES:

```
use spmdMod
```

#### ARGUMENTS:

```
integer, allocatable :: di_array(:) !array containing the sizes of the decomposed tile space
integer, allocatable :: displs(:) !array containing relative displacements fo the tile space
```

---

#### 1.1.1 allocate\_tiledd (Source File: tile\_spmdMod.F90)

Allocates memory for arrays containing tile decomposition information

#### INTERFACE:

```
subroutine allocate_tiledd()
```

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#### 1.1.2 tile\_spmd\_init (Source File: tile\_spmdMod.F90)

Performs domain decomposition in tile space

#### INTERFACE:

```
subroutine tile_spmd_init(tile, nch, nmif)
```

#### USES:

```
use tile_module
```

#### ARGUMENTS:

```
type(tiledec) :: tile(nch)
integer :: nch, nmif
```

#### CONTENTS:

```
ntiles = 1
deltax = nch/npes
do p=0,npes-2
    nti(p) = ntiles
    tindex = ntiles+deltax-1
    gind = tile(tindex)%index
    do while(tile(tindex+1)%index ==gind)
        tindex = tindex+1
    enddo
    ntf(p) = tindex
    ntiles = tindex+1
enddo
nti(npes-1) = ntiles
ntf(npes-1) = nch
do i=0,npes-1
    di_array(i) = ntf(i)-nti(i)+1
enddo

displs(0) = 0
do i = 1, npes-1
    displs(i) = displs(i-1)+di_array(i-1)
enddo
```